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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Toshio Nakakuki

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HOGAN & HARTSON L.L.P.
1999 AVENUE OF THE STARS
SUITE 1400
LOS ANGELES, CA 90067

EXAMINER

RICE, ELISA M

ART UNIT

PAPER NUMBER

2624

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DELIVERY MODE

10/20/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/823,898	Applicant(s) NAKAKUKI, TOSHIO	
	Examiner ELISA M. RICE	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/8/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-7 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-7 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

The response filed on July 8, 2008 has been received and considered. Claims 1, 2, 5-7, and 10 are currently pending.

Applicant's Argument:

"Therefore, unlike the invention recited in applicant's claims 1 and 6, Kanzaki's threshold value is not used in detecting a peak in a spectrum of luminance values (predetermined physical quantity). In sum, while applicant and Kanzaki both use a threshold value, it is used for completely different purposes. Kanzaki uses its threshold value (average luminance value) to evaluate a luminance value of each pixel in an image, while applicant's threshold value of claims 1 and 6 is used to detect a peak in a spectrum of predetermined physical quantity (e.g., luminance). Tamura's use of threshold values differs from Kanzaki in the same manner. Thus, applicant's invention as recited in claims 1 and 6 is not obvious over Tamura in view of Kanzaki's completely different method of setting and using threshold values."

Examiner's Response:

Using an average physical quantity in order to set a threshold for detection

of changes in a physical quantity is well-known as shown in the Kanzaki reference. As shown in FIG. 2 and discussed in column 7, line 48 to column 8, line 50, an automatic threshold value section 12 calculates an average value of luminance of picture elements and determines a threshold value which is used to detect image portions where inputted image data is different in luminance from the background image data, areas of peak luminance compared to the rest of image.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5, 6, 7, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al (US 6,040,860) and Kanzaki et al. (6,137,531).

Regarding claim 1, Tamura discloses an image processing device for acquiring image data to be processed (“comprises an imaging element for outputting an image signal”, column 2, line 62), extracting a spectrum of a predetermined physical quantity in said image data (“FIG. 4 is a sample luminance histogram showing the feature quantity

Art Unit: 2624

extracted by the feature quantity extraction circuit 107", column 4, line 28), making a determination as to whether or not said spectrum has a plurality of peaks ("This luminance histogram (FIG. 4bcd) shows that there are two luminance peaks with one in the low luminance range and one in the high luminance range. This makes it possible to deduce that the captured image contains a backlit subject.", column 8, line 65), and performing a process based on a result of the determination, wherein the process is a backlighting correction process(The image evaluation means 108 then sets the compensation rate of the gradation compensation characteristic used to compensate the input image based on the luminance histogram extracted by the feature quantity extraction circuit 107, column 9, line 2), wherein the determination as to whether or not said spectrum has a plurality of peaks is made based on, with respect to said spectrum, an integral value of a range where said physical quantity is no greater than a first threshold, and an integral value of a range where said physical quantity is no smaller than a second threshold which is greater than said first threshold ("FIG. 4 is a sample luminance histogram showing the feature quantity extracted by the feature quantity extraction circuit 107 in the present embodiment of the invention. Curve a in FIG. 4 is the luminance histogram where the low luminance pixel count of pixels with a luminance value less than or equal to threshold value 1 is level b, the middle luminance pixel count of pixels with a luminance value between threshold value 1 and threshold value 2 is level c, and the high luminance pixel count of pixels with a luminance value greater than or equal to threshold value 2 is level d.", column 7, line 6; "This luminance histogram (FIG. 4bcd) shows that there are two luminance peaks with one in the low luminance

Art Unit: 2624

range and one in the high luminance range. This makes it possible to deduce that the captured image contains a backlit subject.”, column 8, line 65).

Tamura does not disclose wherein at least one of said first and second thresholds is set based on an average level of said physical quantity of said image data.

Kanzaki teaches wherein at least one of said first and second thresholds is set based on an average level of said physical quantity of said image data (Kanzaki, column 8, lines 18-22).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Tamura to include thresholds being set based on the average level of luminance of said image data as taught by Kanzaki rather than having predetermined or fixed thresholds so that, as stated in the Kanzaki reference in column 8 between lines 18 and 22, “depending on the calculated average value of luminance, the automatic threshold value section 12 determines a threshold value necessary for subsequent Step 3. As the average value of luminance becomes larger, a larger threshold value is determined.” In this way, since threshold values are determined for the actual images based on the image's actual characteristics, it will provide backlighting information more relevant to the chosen inputted images.

Regarding claim 2, Tamura discloses the image processing device according to claim 1, wherein said physical quantity is a signal varied in accordance with a change in an amount of light or a luminance (“FIG. 4 is a sample luminance histogram showing the

Art Unit: 2624

feature quantity extracted by the feature quantity extraction circuit 107", column 4, line 28) .

Regarding claim 5, Tamura discloses the image processing device according to claim 3, wherein said first threshold is smaller than the average level of said physical quantity, and said second threshold is greater than the average level of said physical quantity (Fig. 4 and Fig. 5a; column 7, lines 6-16, Tamura is separating a histogram spectrum into three luminance regions and because the average luminance is related to the middle luminance region (Fig. 5a) in order to evaluate the amount of backlighting in a typical image input signal (column 8, lines 56-58; Fig. 3), the first threshold is smaller than the average level of the luminance, and said second threshold is greater than the average level of the luminance.), and said spectrum is determined as having a plurality of peaks when satisfying at least two conditions out of: a first condition that an integral value of a range where said physical quantity is no greater than said first threshold is no smaller than a first percentage of an integral value of the entire range (column 7, line 9-11; column 7, line 17-20; Fig. 2, num. 107 and 108); a second condition that an integral value of a range where said physical quantity is no smaller than said second threshold is no smaller than a second percentage of the integral value of the entire range (column 7, lines 14-16; column 7, line 21-22; Fig. 2, num. 107 and 108)); and a third condition that a sum of the integral value of the range where said physical quantity is no greater than said first threshold and the integral value of the range where said physical quantity is no smaller than said second threshold is no smaller than a third percentage of the integral value of the entire range.

Regarding claim 6, Tamura discloses an image processing method for acquiring image data to be processed (“comprises an imaging element for outputting an image signal”, column 2, line 62), extracting a spectrum of a predetermined physical quantity in said image data (“FIG. 4 is a sample luminance histogram showing the feature quantity extracted by the feature quantity extraction circuit 107”, column 4, line 28), making a determination as to whether or not said spectrum has a plurality of peaks (“This luminance histogram (FIG. 4bcd) shows that there are two luminance peaks with one in the low luminance range and one in the high luminance range. This makes it possible to deduce that the captured image contains a backlit subject.”, column 8, line 65), and performing a process based on a result of the determination, wherein the process is a backlighting correction process(The image evaluation means 108 then sets the compensation rate of the gradation compensation characteristic used to compensate the input image based on the luminance histogram extracted by the feature quantity extraction circuit 107, column 9, line 2), wherein the determination as to whether or not said spectrum has a plurality of peaks is made based on, with respect to said spectrum, an integral value of a range where said physical quantity is no greater than a first threshold (, and an integral value of a range where said physical quantity is no smaller than a second threshold which is greater than said first threshold (“FIG. 4 is a sample luminance histogram showing the feature quantity extracted by the feature quantity extraction circuit 107 in the present embodiment of the invention. Curve a in FIG. 4 is the luminance histogram where the low luminance pixel count of pixels with a luminance

Art Unit: 2624

value less than or equal to threshold value 1 is level b, the middle luminance pixel count of pixels with a luminance value between threshold value 1 and threshold value 2 is level c, and the high luminance pixel count of pixels with a luminance value greater than or equal to threshold value 2 is level d.”, column 7, line 6; “This luminance histogram (FIG. 4bcd) shows that there are two luminance peaks with one in the low luminance range and one in the high luminance range. This makes it possible to deduce that the captured image contains a backlit subject.”, column 8, line 65).

Tamura does not disclose wherein at least one of said first and second thresholds is set based on an average level of said physical quantity of said image data.

Kanzaki teaches wherein at least one of said first and second thresholds is set based on an average level of said physical quantity of said image data (Kanzaki, column 8, lines 18-22).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Tamura to include thresholds being set based on the average level of luminance of said image data as taught by Kanzaki rather than having predetermined or fixed thresholds so that, as stated by the Kanzaki reference in column 8 between lines 18-22, “depending on the calculated average value of luminance, the automatic threshold value section 12 determines a threshold value necessary for subsequent Step 3. As the average value of luminance becomes larger, a larger threshold value is determined.” In this way, since threshold values are determined for

Art Unit: 2624

the actual images based on the image's actual characteristics, it will provide backlighting information more relevant to the chosen inputted images.

Regarding claim 7, Tamura discloses the image processing method according to claim 6, wherein said physical quantity is a signal varied in accordance with a change in an amount of light or a luminance ("FIG. 4 is a sample luminance histogram showing the feature quantity extracted by the feature quantity extraction circuit 107", column 4, line 28).

Regarding claim 10, Tamura discloses the image processing method according to claim 7, wherein said first threshold is smaller than the average level of said physical quantity, and said second threshold is greater than the average level of said physical quantity (Fig. 4 and Fig. 5a; column 7, lines 6-16, Tamura is separating a histogram spectrum into three luminance regions and because the average luminance is related to the middle luminance region (Fig. 5a) in order to evaluate the amount of backlighting in a typical image input signal (column 8, lines 56-58; Fig. 3), the first threshold is smaller than the average level of the luminance, and said second threshold is greater than the average level of the luminance.), and said spectrum is determined as having a plurality of peaks when satisfying at least two conditions out of: a first condition that an integral value of a range where said physical quantity is no greater than said first threshold is no smaller than a first percentage of an integral value of the entire range

Art Unit: 2624

(column 7, line 9-11; column 7, line 17-20; Fig. 2, num. 107 and 108); a second condition that an integral value of a range where said physical quantity is no smaller than said second threshold is no smaller than a second percentage of the integral value of the entire range (column 7, lines 14-16; column 7, line 21-22; Fig. 2, num. 107 and 108); and a third condition that a sum of the integral value of the range where said physical quantity is no greater than said first threshold and the integral value of the range where said physical quantity is no smaller than said second threshold is no smaller than a third percentage of the integral value of the entire range.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELISA M. RICE whose telephone number is (571)270-

Art Unit: 2624

1582. The examiner can normally be reached on 12:00-8:30p.m. EST Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571)272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elisa M Rice/
Examiner, Art Unit 2624

/Vikkram Bali/
Supervisory Patent Examiner, Art Unit 2624